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By

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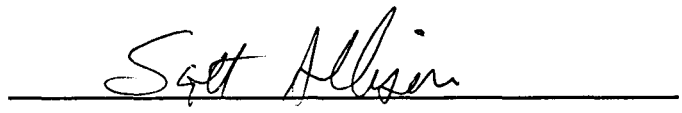
The egocentric bias, peoples' tendency to view themselves as better than others, has been found to exist in many different domains (Messick, Bloom, Boldizar, & Samuelson, 1985). Fejfar, Proudfoot, Allison, and Beggan (1994) uncovered evidence supporting two components to the bias: the motivation to be egocentric and the construction of strategies to fulfill this motivation. In the present research, this model was used to determine the biases inherent in depressive (as opposed to nondepressive) cognitions by having subjects list good and bad behaviors performed by themselves and others. Subjects directly or indirectly compared themselves to others (to test the motivation component) and listed behaviors under high or low cognitive load (to test the construction component). The egocentric bias and motivation effects were replicated. Possible explanations for the nonsignificant cognitive load and depression effects, as well as revisions in methodology for future research involving depression, are discussed.

I certify that I have read this thesis and find that, in scope and quality, it satisfies the requirements for the degree of Master of Arts.



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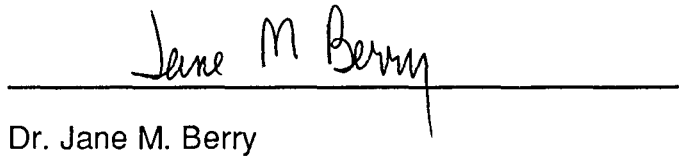

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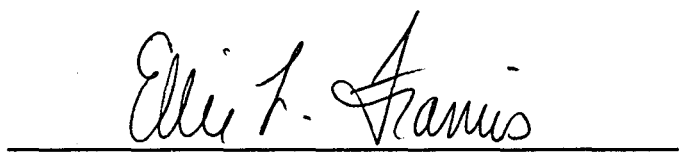

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The "Unstinted Effort" of Social Comparison: Biases in the Retrieval of Behavior Among Depressives and Nondepressives

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The "Unstinted Effort" of Social Comparison: Biases in the Retrieval of Behavior Among Depressives and Nondepressives

> In unstinted effort I can compare with others, but in being a practising gentleman I have had, as yet, no success.
>
> - Confucius (551 - 479 B.C.)

The egocentric bias, the tendency for people to consider themselves better than others, occurs in many domains. People consider themselves more intelligent than others, more athletic than others, and better drivers than others. As implied by Confucius in the above quote, people expend cognitive effort to form these self-serving comparisons. The purpose of the present research was to test whether self-enhancement requires both the motivation implied and the effort mentioned by Confucius. Moreover, the current study also tested the converse idea, namely, whether any self-derogation shown by depressed individuals also requires motivation and cognitive effort. To address these complex issues, this paper will review the literatures associated with cognitive theories of depression, empirical research focusing on depressive cognitions, studies of the egocentric bias, and the application of egocentric biases to depression.

Prominent Cognitive Theories of Depression

Because of the sadness, dejection, and mood swings characteristic of depression, it has been thought of primarily as an affective disorder in the past.

However, cognitions, not emotion, are now being viewed as contributing more to the development of depression. Although the symptoms of depression include negative mood, Alloy (1991) asserts that "affective bouts may reflect standard, normative reactions to negative appraisals of one's circumstances" (p. 72). More strongly, Burns (1980), in his three principles of cognitive therapy, postulates that all of one's moods are created by one's cognitions or thoughts, that depressive thoughts are dominated by pervasive negativity, and that the negative thoughts causing one's "emotional turmoil" almost always contain gross distortions. Depression is often compared to anxiety, another cognitive disorder. Both share similar loss and threat cognitions, but higher levels of distress and hopelessness characterize depression (Alloy, 1991; Ambrose & Rholes, 1993).

Both Beck and Abramson, prominent depression theorists, also emphasize cognitions and their interaction with environmental stressors as important in the development of depression (Gotlib, 1992). Each theorist's model involves the idea that depression occurs when a cognitive vulnerability interacts with a negative life event that matches the domain of the cognitive vulnerability; this is commonly referred to as the diathesis-stress model. In his cognititve model of depression, Beck (1976) also included the following cognitive processes that generate negative thoughts: faulty information processing; negative self-schemas; and the cognitive triad. The self-schemas involve negative and maladaptive attitudes that originate in childhood and, when activated by environmental stressors, cause the person to sometimes distort information to fit into a schema. The cognitive triad consists of

depressives' characteristic negative views of themselves, of their experiences, and of the future. These cognitions can also be triggered by environmental stressors. Faulty information processing and errors in thinking include overgeneralization, magnification and minimization, and selective abstraction. All of these errors involve a distortion of "reality" that sheds a negative light on the self.

Abramson has focused on different sources of negative cognitions: attribution style and learned helplessness (Gotlib, 1992). Normal attribution style involves an individual attributing success to internal, global, and stable factors, and failure to external, local, and unstable factors; success is attributed to him or herself and failure is attributed to the situation. In contrast, depressive attribution style tends to involve attributing failures to global, stable, and internal causes, and successes to the opposite causes, particularly for negative events (Sweeney, Anderson, & Bailey, 1986; Raps, Peterson, Reinhard, Abramson, & Seligman, 1982). This finding corresponds with the idea that depression makes a "negative set" of cognitions salient. This set is a tendency to see negative behavior as dispositional rather than situational (Green, Lightfoot, Bandy, & Buchanan, 1985). Although a relation between attributions and depression has been shown, attribution style has not been found to predict the onset of depression (Tiggeman, Winefield, Winefield, & Goldney, 1991).

Abramson's second focus, learned helplessness theory, began with experiments which tested dogs' avoidance of and escape from electric shock (Overmier & Seligman, 1967; Seligman & Maier, 1967). The helpless response that dogs learned during inescapable shock interfered with future escape and

avoidance reactions. Applying this theory to humans, Abramson asserted that subjects perceive a loss of control and continuously blame themselves for the outcome. The application to depressives was criticized, with the logic that people who realize that there is a loss of control would not proceed to blame themselves, but would blame the situation. In response to these criticisms, Abramson, Seligman, and Teasdale (1978) theorized that once people perceive a lack of control, they attribute their helplessness to a cause, which may be the situation or the self. The attribution chosen influences the form of future helplessness; if people attribute their helplessness to themselves, they may consider themselves helpless in future situations.

Beck and Abramson's postulate that depression is characterized by negative cognitions and attributions has been supported. Both models also postulate that depression is caused by these negative cognitions, although this assertion has not yet been supported by research. Although some research (Coyne & Gotlib, 1983) claims that depressive attributions may not be consistent, the finding that the cognitions of depressives are different from those of nondepressives is well supported, as described in the following section.

Research on Depressive Cognitions

One characterization of depressive cognitions is that they are distorted (Beck, 1976). However, an emerging argument is that depressive cognitions are not distorted, but in fact are more realistic than in nondepressives. Alloy and Abramson (1979) produced findings that support the idea that it is nondepressives who have trouble assessing response-outcome relationships. In estimating the degree of contingency between their responses and

environmental outcomes, nondepressives showed more illusions of control for good outcomes and of no control for bad outcomes, while depressives were more accurate in their estimations of control. Likewise, Lewinsohn, Mischel, Chaplin, and Barton (1980) found similar results. Depressives tended to distort their perceptions of self-competence less than did nondepressives. However, this depressive realism may not apply to depressives' judgments of others. Tabachnik, Crocker and Alloy (1983) showed that, although depressed subjects portrayed themselves as less similar to others on both positive and negative traits, nondepressed subjects were more accurate in judging the percentage of college students who were characterized by certain attributes. Therefore, depressive realism in some domains has been supported. Although, depressives' more realistic view of the self may not be functional, they clearly think differently than nondepressives.

A memory bias also characterizes depressives' different cognitive processes. There is a strong bias to recall negative, particularly self-referential, material among depressives relative to nondepressives. This tendency occurs with autobiographical material, with material presented experimentally, and also with laboratory mood induction and clinical depression (Mineka & Sutton, 1992). Mineka and Sutton (1992) also concluded that anxiety and depression have different effects on cognitive processing. Whereas depressives have a memory bias, anxious subjects had an attentional bias for threatening stimuli.

One of the aforementioned characteristics of depressive attribution style is stability of negative attributions. One problem with the proposal that these attributions predispose individuals to depression is the finding that when

depressive symptoms go into remission, so do the negative cognitions (Gotlib, 1992). This instability has led many researchers to conclude that the cognitions are a result of depression, and not a vulnerability (causal) factor. In contrast, Persons and Miranda (1992) have proposed a mood-state hypothesis that allows cognitions to remain a potential cause of depression development. They hypothesized that the dysfunctional cognitions of depression are stable, but that an individual's ability to report them depends on their current mood state. They also theorized that the negative mood state may act as the environmental stressor that triggers the depressive episode. This hypothesis is consistent with the finding of one of their experiments that depressed psychiatric patients showed changes in their negative cognitions as a result of spontaneous mood fluctuation. In a second experiment, nondepressed individuals with a history of a depressive episode had higher scores on the dysfunctional attitudes if they were put into a negative mood state, but individuals without a history of depression did not show higher dysfunctional attitudes even when a negative mood state was induced. These findings support the role of cognitions in depression and encourages the use of a vulnerability activating procedure when assessing cognitive vulnerabilities to depression.

Simons, Angell, Monroe, and Thase (1993) also studied cognitive vulnerabilities and life stress in the context of the diathesis-stress model. They tested the possibilities that cognitive factors (including dysfunctional attitudes and attribution style) influence 1) the definition of stressful life events, 2) the ratings of the severity of the stress, and 3) the generation of stressful life events. They assessed depressives' cognitive factors and compared self-report and

interview measures of life stress. They found that there was a large difference between the self-report and interview for the frequency of reported stressful events and the reported severity of those events, with a greater number of events and more severe events produced in the self-report. The authors suggested that these discrepancies may be associated with dysfunctional cognitions. Subjects scored high on cognitive factors and the findings supported the idea that depressives tend to perceive and attend to events more readily than nondepressives. These perceptions may be associated with cognitive vulnerabilities, and when triggered by a stressful event, may further the development of or maintain depression.

The Egocentric Bias

A specific, normal cognitive tendency that may be affected by depression is the egocentric, or self-serving, bias. The egocentric bias refers to one's proclivity to think of oneself more positively or as better than others. This bias can be considered one form of social comparison that Goethals, Messick, and Allison (1991) have called constructive social comparison. Constructive social comparison relies on conjecture or rationalization and occurs when people wish to avoid or do not need veridical comparison information. Little research comparing different types of social comparison has been done. Recently, Sedikides (1993) compared three different forms of self-evaluation: self-assessment (the objective and accurate evaluation of self-relevant information), biased self-enhancement (the positive coloring of self-relevant information), and self-verification (the confirmation of preexisting self-conceptions). He used a self-reflection task, involving subjects' assessments of traits that were peripheral

or central and positive or negative. In a series of experiments, subjects consistently used the self-enhancement process over the other forms of self-evaluation, even when they were instructed to self-reflect as a scientist would, objectively and accurately. Use of self-enhancement occurred when evaluating the self and when evaluating a nonsignificant other.

The egocentric bias itself has been studied extensively and in different judgmental contexts. Normal subjects have been shown to attribute more good, or positive, behaviors to themselves and more bad, or negative, behaviors to others (Allison, Messick, & Goethals, 1989). This bias can be viewed as a defensive cognition, used to protect self-esteem, and can occur in many domains, such as morality, ability, or intelligence (Goethals et al., 1991). In addition, Felson (1981) found that biases were more likely to occur when evaluations involved characteristics or traits that were ambiguous. He measured football players' estimates of their own abilities and compared them to coaches' estimates. Biases were greater for more ambiguous abilities, such as coordination, football sense, and mental toughness, than for unambiguous abilities, such as speed, size, and strength.

Along the same lines, Allison et al. (1989) compared subjects' biases for good-bad dimensions and intelligent-unintelligent dimensions. Although they found biases for both dimensions, the bias for goodness, a relatively subjective dimension, was stronger than the bias for intelligence, a more objective dimension. Messick, Bloom, Boldizar, and Samuelson (1985) also found evidence for an egocentric bias in fairness judgments, another ambiguous domain. Subjects attributed more fair than unfair items to themselves and more

unfair than fair items to others. Their findings also suggested that we think we do fair things more often and unfair things less often than others, but that we do not think that a behavior is fairer when we do it than when others do it.

Biases also occur for many different populations and cultures (Myers & Ridl, 1979). For example, students have been shown to evaluate an exam as a better measure of their competence when they have received a good grade as opposed to when they have received a bad grade. Several experiments run in France have also uncovered evidence of an egocentric bias, regardless of the method employed. Lerner, Somers, Reid, Chiriboga, and Tierney (1991) found that adults caring for their parents also displayed a a self-serving bias. Subjects reported that the caregiving arrangements were fair to both themselves and their siblings; however, subjects also felt that they had more influence in creating the arrangements, derived more satisfaction from helping, and had less choice about whether to continue helping. They generally indicated that it would be more fair if siblings gave more and they gave less. The bias was stronger if the sibling wasn't as well-liked and respected, and if caregivers had greater demands placed on themselves and their resources. The authors theorized that the self-serving biases may arise from subjects' discrepancy between the knowledge of their own caregiving costs and that of the siblings.

Other factors that contribute to the use of the bias may be the controllability and desirability of a trait. Alicke (1985) asked subjects to rate the degree to which varying traits were characteristic of themselves and of the average college student. Traits selected for ratings were positive and negative, high and low in desirability, and high and low in controllability. As traits

increased in desirability or controllability, they were more likely to be endorsed as characteristic of the self and of the average student. Subjects also perceived themselves to be characterized more by desirable traits than others were. The author theorized that "by evaluating the self on such global characteristics as intelligence, sociability, morality, and so on, more or less independently of the specific situations in which these characteristics are displayed, it is possible to construct a positive self-concept that is relatively immune to disconfirmation by specific events" (p. 1626). This global self-evaluation allows a self-serving bias even when one's specific abilities do not support such a conclusion.

Depression and the Egocentric Bias

The self-serving bias has been shown to help maintain self-esteem and can often be used subjectively without need for confirmation or concrete support, yet it seems to have limited use in the cognitions of depressives. This phenomenon is curious, and implies that depressive cognitions are different from those of nondepressives. A popular theory is that depressives not only do not behave in a self-serving fashion, but that they actually derogate themselves compared to others (Miller & Moretti, 1988). Research has not generally supported this hypothesis, but how depressives do react in social comparison situations is worth examination and review. The egocentric bias is particularly useful in studying depression, because it involves social comparison and evaluations of the self.

Some research has found that self-focused attention may play a role in producing depression. Pyszczynski and Greenberg (1985) have examined self-focusing in depressives and nondepressives. They found that both depressives

and self-focused nondepressives show an increased self-evaluative tendency and lowered self-esteem. Depressed individuals also do not seem to avoid self-focus after failure. This finding is consistent with the idea that depressives do not exhibit the defensive cognitions that nondepressed individuals use in response to events. Greenberg, Pyszczynski, Burling, & Tibbs (1992) again examined self-focused attention and also the self-serving attributional bias. They found that the attributions of depressed subjects for success and failure were both similarly internal. Depressives were similar to normal subjects in their attributions of success, but not in their attributions of failure. Furthermore, depressives' use of a nondepressive style of focusing away from the self led to a self-serving bias. Thus, the authors concluded that attributional focus may play an important role in mediating self-serving attributions.

However, comparisons between psychiatric depressed, psychiatric nondepressed, and nondepressed groups made by Gotlib and Olson (1983) do not necessarily support these findings. The groups did not differ in the number of correct answers to a task, but did differ in their estimated number of correct answers and in their performance satisfaction. Nondepressed subjects scored higher in those categories than did the other two groups. Because there was no difference between the psychiatric groups, the authors concluded that depression and attributions for success and failure may not actually be related.

Rosenfarb and Aron (1992) even go as far to say that depressive cognitions may serve a self-protective function. They compared performance on a task in which instructions of different social-evaluative threat were given. Depressives tended to endorse more negative cognitions when those factors

could be used as excuses for poor performance. In this way they were protected from further loss of self-esteem. Pyszczynski and Greenberg (1985) also theorized that because depressives preferred self-focus after failure, self-derogating tendencies "may serve the function of maintaining a safe, stable level of self evaluation" (p. 1073). However, opposition has been taken against the idea that depressives engage in self-depreciation rather than self-enhancement. In a study on social comparison and the false-consensus effect, Tabachnik, Crocker, and Alloy (1983) found that depressed subjects viewed themselves as more dissimilar to the average college student than did nondepressives, but there was no consistent bias to engage in self-depreciation or self-enhancement. It was nondepressives who rated themselves better than others.

In their review of the literature, Miller and Moretti (1988) examined many studies to determine whether depressives are more self-serving or more self-disserving. They included Rizley (1978) who compared the explanations for success and failure of depressives and nondepressives. Depressives reported more internal attributions for failure than did nondepressives, but there were no differences in attributions for success. Miller and Moretti (1988) found similar findings in their review and concluded that depressives take more personal responsibility for negative outcomes than do nondepressives, but both groups attribute positive outcomes internally. Depressives may differ from nondepressives in their motivation to enhance self-esteem, but they are not motivated to maintain a negative image of themselves.

Another study with interesting results was performed by Agostinelli,

Sherman, Presson, and Chassin (1992). They compared the motivations for self-protection and self-enhancement in depressed and nondepressed subjects by analyzing the reactions to positive and negative feedback. They found that generally the effect of the self-protection motive after failure feedback was greater than the effect of the self-enhancement motive after success. Both motivations were weaker for depressed than for nondepressed subjects. Depressed subjects showed weaker self-protection motives and no self-enhancement effects. The authors concluded that depressives discount success, but do seem to be somewhat motivated to avoid thinking less of themselves than they already do.

The attributions of depressives also vary within different contexts. For example, the importance of the performance task to the depressive may affect their attributions. Mittelstaedt and Wollert (1991) studied subjects with self-blaming tendencies. These subjects were more dysphoric than other subjects and the mood differences between the two groups were largest when the task was perceived as important.

Pelham (1991) examined task importance from a different perspective. Self-views of depressives of varying severity were compared across different domains. Subjects rated the importance of various abilities, such as intelligence, artistic talent, athletic ability, and social competence. Pelham found that the depressed subjects did tend to display a self-serving bias on the domain that was most important to them. This finding was most apparent in severely depressed subjects. It was theorized that depressives may use the bias to help bring themselves out of the depression and that it would be easier

to view oneself positively in one domain than to overhaul the whole belief system. Pelham's theory that the egocentric bias may be used as a coping strategy is seconded by Wills (1991). In a literature review, he found that individuals who scored high on depressive symptomology were more likely to prefer downward comparison (or compare themselves favorably to inferior others); these comparison choices were followed by a change in well-being.

One can see that the literature involving depressives and self-servingness is muddled in its conclusions. Whether depressives actually are realistic compared with normal subjects, self-derogate on both positive and negative dimensions, attribute internally for positive and negative events, or use the egocentric bias as a coping strategy remains to be seen. However, the conclusion that depressive cognitions are different from normal cognitions is well supported. This difference has occurred in many domains, including that of the egocentric bias. A new theory that may shed light on the controversy is that of a dual-component model of the egocentric bias.

Fejfar, Proudfoot, Allison, and Beggan (1994) hypothesized that the egocentric bias consists of two components, motivation and construction. These hypothesized components are similar to the concepts of automatic and effortful or controlled processing. Automatic processing operations are well-learned, unaffected by load (Shiffrin & Schneider, 1977), require little or no attention, and are the result of frequently encountered stimuli (Bargh, 1982). Automaticity of the motivation to be egocentric is not absolute; the propensity is always there, but it may be enhanced by the situation. This idea that, at some level, egocentric motivation is always present is supported by the previously

mentioned study by Sedikides (1993), in that subjects believed that they were being accurate and objective while they were actually self-serving. The construction of the bias is the relatively more effortful task. Effortful or controlled information processing is conscious (Bargh, 1982), requires much attention, is strongly dependent on load (Shiffrin & Schneider, 1977), is initiated intentionally, and interferes with other cognitive activities (Hasher & Zacks, 1979). It would be easier to cognitively interfere with the effortful construction component than with the more automatic motivation component.

According to Fejfar et al.'s (1994) motivation and construction model of the egocentric bias, people are automatically motivated to be egocentric, and they also exert effort to construct cognitive or behavioral strategies to fulfill this motivation. To test the model, Fejfar et al. (1994) had subjects list good and bad behaviors that they and other people performed. This morality domain was used because it was hypothesized to be a subjective domain for which most people would show a bias. Subjects listed behaviors while directly comparing themselves to others (interpersonal condition) or without direct comparison (noninterpersonal condition). It was hypothesized that the interpersonal context would trigger the motivation to compare favorably to others. To test the construction component, subjects filled out the questionnaires under conditions of high or low cognitive load. Those in the high cognitive load condition were asked to watch and memorize the information on a videotape; this distraction was hypothesized to interfere with the subject's ability to construct their egocentric self-images. The results revealed support for both components of the model. Subjects in the interpersonal condition listed more good behaviors

and less bad behaviors for themselves, and more bad and less good for others, than did subjects in the noninterpersonal condition. Moreover, subjects under a low cognitive load showed a stronger bias than did those under a high cognitive load.

One potential problem with this study was that subjects were given a five minute time limit to complete the behavior listing task. High cognitive load subjects generated fewer behaviors than low load subjects, and these subjects might have produced more biased examples had they been given more time. A follow-up study (Rogevich, Fejfar, Proudfoot, Allison, & Beggan, 1995) in which subjects were given either a five minute time limit, no time limit, or a seven minute time limit to complete the task was conducted. No significant difference between the different time groups was found, and it was concluded that the five minute time limit did not have an adverse effect on the results of the first study. The two component model of the egocentric bias was supported and replicated.

These findings may help to determine the cognitive differences between normal and depressed subjects. Examining the motivation and construction of depressive biases may pinpoint the cognitive differences between depressives and nondepressives. Following a procedure similar to Fejfar et al.'s (1994), the present research investigated whether the self-derogation associated with depression features the same two components (motivation and construction) as does the egocentricity associated with nondepressives. Specifically, it was theorized that depression may involve the motivation to be self-deprecating, as well as the construction of a self-deprecating world.

Results for nondepressed individuals were hypothesized to be similar to

those of the previous studies, with a reduction of the egocentric bias in the high cognitive load and noninterpersonal conditions. Generating predictions, however, was not so simple for depression as compared to nondepression. Much of the current research on depression and the bias has used attributions as the dependent variable, as opposed to the behavior recall intended for this study, so this study was exploratory in that respect. The most prominent finding today espouses the view that depressives attribute all outcomes internally, accepting responsibility for success and for failure. If this internal attribution theory is correct, then depressed subjects should write a number of good behaviors for themselves comparable to that written by nondepressives and also as many bad behaviors for themselves as good behaviors; this effect was expected to be reduced in the noninterpersonal and high cognitive load conditions.

However, there is little research predicting how depressed subjects will retrieve instances of others' behavior. The task used lends itself to interpersonal theory, but most studies of the interpersonal aspects of depression focus, not on attributions, but on the deficits in interpersonal functioning of depressives (Gotlib, 1992) and the reactions by others to depressives' behaviors (Horowitz, Locke, Kenneth, Morse, Waikar, Dryer, Tarnow, & Ghannam , 1991; Joiner, Alfano, & Metalsky, 1993). Depression may lead subjects to see the behavior of others as similar to themselves (listing the same numbers of behaviors for others as for themselves), or depressives could derogate themselves with respect to others (listing similar numbers of good and bad behaviors for themselves, but more good and fewer bad for others).

Because of the limited amount of research in this particular area, no firm predictions for the listing of others' behaviors by depressives could be made.

Method

Subjects

One-hundred twenty-five subjects were recruited from the Introduction to Psychological Science course at the University of Richmond and from other courses on campus. Introductory students received class credit for their participation and other students were compensated $8.00 for one-half hour of participation. Subjects were treated in accordance with APA ethical guidelines (American Psychological Association, 1992).

Materials

The revised Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) was used to assess depression. The BDI has demonstrated high internal consistency in psychiatric and nonpsychiatric populations (Beck, Steer, & Garbin, 1988) and has also been shown to have high test-retest reliability and concurrent validity with clinical ratings in many different populations (Beck, Steer, & Garbin, 1988; Kauth & Zettle, 1990; Stehouwer, 1985).

To test the egocentric bias, questionnaires requesting subjects to list good and bad behaviors performed by themselves and others were used. The interpersonal questionnaire required subjects to list good behaviors that they and others perform on one page, and bad behaviors that they and others perform on another page. See appendix A for interpersonal instructions. The noninterpersonal questionnaire required subjects to list good and bad behaviors that they perform on one page, and good and bad behaviors that

others perform on the other page. Subjects were instructed to label the behaviors they list as good or bad. See appendix B for noninterpersonal instructions. The order of the pages of the questionnaire were counterbalanced.

A post-task questionnaire assessing how distracted, stressed, and motivated subjects felt while completing the tasks and how difficult the task was thought to be was also administered. For each item, subjects were instructed to circle a number from one to five. See appendix C for post-task questionnaire.

Procedure

Subjects arrived at the testing site in groups of one to ten. They were told that the experiment was concerned with social judgments, and that they would be filling out questionnaires. They were then given consent forms to sign and told that the information they gave would be kept confidential. In order to avoid any expectancy bias, they were not told that they would fill out the BDI. Subjects were asked if they had any questions and informed that they could leave at any time and not be penalized.

Subjects were first given a questionnaire requesting the subject's age and sex. Subjects then filled out the BDI. It had already been randomly determined whether the subject group would be in the high or low cognitive load condition. Subjects within the group were then randomly assigned to the interpersonal or noninterpersonal condition.

Subjects in the high cognitive load condition were told to attend to a cartoon videotape because they would be tested on their ability to attend to two tasks at once. They were asked to fill out their questionnaire at the same time

and to make sure that they attended to both the video and the questionnaire. Following completion of the questionnaires, they were handed blank sheets of paper, labeled with subject number, and asked to free recall about the videotape material. Subjects in the low cognitive load condition were only told to fill out their behavior listing questionnaire, with no videotape playing.

The post-task questionnaire, used as a manipulation check, was then administered. Once all tasks were completed, the subjects were debriefed and their questions answered. The experimenter drew aside any subject who scored 15 or higher on the BDI and discussed their score privately. Special attention was also paid to the items referring to suicide and hopelessness, as recommended by the BDI manual. The experimenter explained that the subject scored in the mild to moderate, moderate to severe, or extremely severe depression range; these are the general guidelines recommended by the BDI manual. The experimenter also explained that she is not an experienced clinician, but encouraged the subject to talk to someone in the counseling center or other mental health centers. Phone numbers for several resources were given to the subject.

Results

Possible scores on the BDI range from 0 to 63. For the purposes of this study, subjects scoring in the upper and lower quartiles were chosen for comparison; subjects who scored "3" or below on the BDI were classified as nondepressed (N = 39), whereas subjects who scored "9" or above on the BDI were considered depressed (N = 30). Data from all other subjects were discarded. Fifty-five of the included subjects were females (27 nondepressed,

28 depressed), and fourteen of the included subjects were males (12 nondepressed, 2 depressed). The average age of the subjects was 19.84; the age range was 17-24.

Manipulation Checks

The answers to the four questions on the post-task questionnaire were analyzed using a 2 (Nondepressed, Depressed) x 2 (Cognitive Load: High, Low) x 2 (Questionnaire version: Interpersonal, Noninterpersonal) multiple analysis of variance. Subjects under high cognitive load rated themselves as significantly more distracted (M = 2.97) than those under low cognitive load (M = 1.79), $F(1,61) = 26.05$, $MSe = .89$, $p < .0001$. Depressed subjects rated themselves as more stressed (M = 2.06) than did nondepressed subjects (M = 1.49), $F(1,61) = 5.96$, $MSe = .91$, $p < .02$. High cognitive load subjects were also marginally more stressed (M = 1.99) than low cognitive load subjects (M = 1.55), $F(1,61) = 3.45$, $MSe = .91$, $p < .07$. No significant group effects for motivation were found; the mean rating for motivation was 3.29. One interaction between depression and questionnaire type was found for the difficulty item. Nondepressed subjects in the noninterpersonal condition found the behavior listing task more difficult (M = 3.24) than those in the interpersonal condition (M = 2.52), and depressed subjects in the interpersonal condition found the task more difficult (M = 3.54) than those in the noninterpersonal condition (M = 2.92), $F(1,61) = 6.49$, $MSe = 1.15$, $p < .02$.

Behavior Listing Task

The numbers of good and bad behaviors attributed to self and others were computed and analyzed using a 2 (Nondepressed, Depressed) x 2

(Cognitive Load: High, Low) x 2 (Questionnaire Type: Interpersonal, Noninterpersonal) x 2 (Behavior: Good, Bad) x 2 (Target: Self, Other) analysis of variance, with repeated measures on Behavior and Target. Table 1 displays the nondepressed means associated with all of the experimental conditions, and Table 2 similarly displays the depressed means. The expected five-way interaction between Depression, Cognitive Load, Questionnaire Type, Target, and Behavior was not significant, $F(1,61) = 1.21$, $MSe = 10.64$, $p = .28$.

A marginally significant main effect was found for depression, with depressed subjects listing more behaviors ($M = 7.97$) than nondepressed subjects ($M = 6.58$), $F(1,61) = 3.76$, $MSe = 33.70$, $p = .057$. In addition, a significant interaction was found between Target and Behavior, $F(1,61) = 18.66$, $MSe = 10.64$, $p = .0001$. The means associated with this interaction are shown in Table 3. As this table illustrates, subjects listed significantly more I-good behaviors ($M = 8.40$) than they-good behaviors ($M = 6.49$), $F(1,61) = 10.76$, $MSe = 11.13$, $p < .003$. In contrast, subjects listed significantly more they-bad ($M = 7.89$) than I-bad behaviors ($M = 6.32$), $F(1,61) = 6.97$, $MSe = 11.57$, $p < .02$. Another way of interpreting this interaction is that subjects listed significantly more I-good than I-bad behaviors, $F(1,61) = 17.90$, $MSe = 7.98$, $p < .001$, and more they-bad than they-good behaviors, $F(1,61) = 4.91$, $MSe = 12.94$, $p < .04$. Overall, this interaction pattern replicates the egocentric bias obtained in numerous previous studies (Allison et al., 1989; Fejfar et al., 1994; Messick et al., 1985).

A significant three-way interaction was also found for Questionnaire Type, Target, and Behavior, $F(1,61) = 5.34$, $MSe = 10.64$, $p < .02$. Similar

numbers of I-good and they-bad behaviors were found for both questionnaire types, but numbers of they-good and I-bad behaviors were higher for the noninterpersonal task than for the interpersonal task. See Table 4 for the means associated with this interaction.

The expected interaction between Cognitive Load, Target, and Behavior was not significant, $F(1,61) = .078$, $MSe = 10.64$, $p = .78$. The cognitive load findings of Fejfar et al. (1994) were thus not replicated. Table 5 displays the relevant means. The interaction between depression, target, and behavior was also not significant, $F(1,61) = 1.75$, $MSe = 18.63$, $p = .26$. Table 6 displays the relevant means.

Discussion

The present study was performed to replicate results previously found by Fejfar et al. (1994) and Rogevich et al. (1995), and to examine the effects of depression on an egocentric bias task involving recall of behavior. This research replicated some findings and presented new possibilities in studying depression, including the use of a new dependent variable that assesses depressives' feelings about others in relation to themselves.

The interaction between target and behavior showed that subjects listed significantly more I-good and they-bad than I-bad and they-good behaviors. In other words, subjects thought that they performed more good behaviors than others and fewer bad behaviors than others. This bias effect replicated the results of Fejfar et al. (1994) and Rogevich et al. (1995). The finding that subjects listed more they-bad than they-good behaviors could be explained by the availability heuristic rather than the egocentric bias. Tversky and

Kahneman (1973) theorized that a person judges and reports the frequency of events (or behaviors) by the ease with which examples come to mind. This heuristic could explain the "other" effect found in this study in that people are much more likely to see negative than positive examples of others' behavior on television, in the newspaper, etc. The availability of primarily negative events could create the biased effect for others; however, the availability heuristic cannot be used to explain the production of more I-good than I-bad behaviors.

The significant three-way interaction between questionnaire type, target, and behavior showed that similar numbers of I-good and they-bad behaviors were generated for both questionnaire types, but numbers of they-good and I-bad behaviors were higher for the noninterpersonal task than for the interpersonal task. What should be emphasized is that the differences between these numbers were greater for the interpersonal task than for the noninterpersonal task, or in other words, the bias found for the interpersonal condition was attenuated in the noninterpersonal condition. This finding supports the motivation component of the two component model theorized by Fejfar et al. (1994). The interpersonal questionnaire was hypothesized to enhance the bias through direct comparison to others, and the noninterpersonal questionnaire was hypothesized to reduce the bias through indirect comparison. This motivation component was supported by Fejfar et al. (1994) and replicated in this study.

An interesting aspect of this replication is that the interaction seems to be driven by the I-bad and they-good domains. This could be a singular effect, or perhaps our knowledge of the I-good and they-bad domains is more consistent

than that of the other two. We may be more accurate about our own good behaviors and then, when we are motivated, we reduce the number of I-bad behaviors that we perform to create our bias. Our knowledge of only bad behaviors performed by others may be explained by the availability heuristic previously mentioned (Tversky & Kahneman, 1973). Then, when we are motivated to show ourselves as better, we speculate that others perform fewer good behaviors than bad. Without that motivation, we may presume that others perform about the same number of good and bad behaviors.

The cognitive construction component of the two component model, demonstrated by Fejfar et al. (1994) and Rogevich et al. (1995), was not replicated in this research. Fejfar et al. (1994) theorized that individuals must exert mental effort to construct strategies to fulfill their motivation, and that high cognitive load would interfere with their ability to do so. In this study, the interaction between cognitive load, target, and behavior was not significant, although subjects under high cognitive load did rate themselves as more distracted than did subjects under low cognitive load. Note that the videotape used in the present study was a different cartoon than the one used in the previous studies. It is possible that, although this tape was somewhat distracting, it may not have been engaging enough. Subjects may have been able to follow the story line without paying full attention. On the other hand, it is also possible that the cognitive load effect is not as robust as originally thought or only occurs with specific types of distracters.

No significant interaction effects for depression were found, although the results warrant further study. Potential problems with the depressed population

used were low numbers of subjects and level of depression. Because a nonclinical, student population was used, there were limited numbers of depressed subjects. The depression condition was also quasi-experimental; it could not be controlled or randomized, so numbers of subjects in some cells of the experimental design were lower than others. Nondepressed cells were generally similar in number to depressed cells, except for the low cognitive load/noninterpersonal cell. In this instance, there were thirteen nondepressed subjects and only six depressed subjects. This difference may have caused a problem in the experimental design.

Another potential source of problems was the level of depression of subjects included. A BDI score of nine was used as the lower cut-off for the depressed group. To have enough subjects, a cut-off this low was necessary, although a subject scoring nine would not be considered clinically depressed. According to the BDI manual, a score in the range of 10-18 corresponds to mild to moderate depression, a score from 19-29 corresponds to moderate to severe depression, and a score from 30-63 corresponds to severe depression. The cognitive load effect may have been nonsignificant because cognitions at the lower levels of depression (or dysphoria) may not be as dysfunctional or pervasive as those of more severely depressed individuals. It could also be that the bias is affected differently at different levels of depression (e.g. mild versus severe). This possibility could not be tested because of the low numbers of depressed subjects. Another explanation for the nonsignificant effect of depression is that the upper cut-off of three for nondepressed subjects was not different enough from the depressed cut-off of nine; again this problem stems

from the limited number of subjects.

A third problem that might explain the nonsignificant findings is not associated with the population. The results showed no significant bias differences between depressed and nondepressed subjects. The theory that depressives are self-derogating, or would generate a number of bad behaviors for themselves similar to that of good behaviors, was thus not supported. This problem may stem from the morality domain used (i. e. the listing of good and bad behaviors). The finding could be explained by Pelham's (1991) theory that depressives view themselves more positively than others on only one domain in order to pull themselves out of the depression. Depressives may choose morality because it is so subjective and does not invite contradiction. Morality may be one domain in which all people view themselves somewhat positively, and thus is ineffective in distinguishing nondepressive from depressive biases.

One nonsignificant finding may help show which comparisons aid an egocentric bias in depressives and which do not. Although the interaction between depression, target, and behavior was not significant, the relationships between the means are in the hypothesized direction. The numbers of behaviors in the I-good, they-good, and they-bad cells are similar for both the depressed and nondepressed groups, however the I-bad cell is much higher for depressed subjects, rivaling the I-good cell. This difference encourages further study to investigate whether or not depressives do list a number of I-good behaviors similar to that of nondepressives and a number of I-bad behaviors similar to that of their I-good behaviors. Also, the numbers of behaviors listed for others are similar for both depressed and nondepressed groups, indicating

that it is possible that depressives are somewhat egocentric when comparing themselves to others. The relationship between these cells could be explained by the aforementioned availability heuristic (Tversky & Kahneman, 1973), or perhaps these comparisons are where the morality domain mentioned in the previous paragraph aids an egocentric bias for depressives.

A further problem may be associated with the dependent variable used. Although the behavior listing task was effective in that subjects were not explicitly asked to estimate frequencies of different kinds of behaviors for themselves and others, using only numbers of behaviors as the dependent variable may be problematic. Some subjects spent more time than others thinking of their behaviors and constructing their sentences. This extra effort is not taken into account when the behaviors are counted. However, because the differences between the numbers of good and bad behaviors listed for self and others are the focus, these individual differences should not have a great effect. Presumably, all subjects spent the same amount of time and effort for each kind of behavior listed.

Unfortunately, the present research was not able to provide strong information on depressive biases and the cognitions involved in those biases. This study has, however, opened up new possibilities for research on depression using recall, as opposed to attribution, tasks. In future research, screening subjects ahead of time would allow the researcher to focus only on the depressed and nondepressed subjects to be used, eliminating the wasted research time spent on subjects who fall in between the two included groups. Future studies should also use greater numbers of subjects, particularly for the

depressed groups. Greater numbers might also allow comparison between mild and more severely depressed subjects, in order to examine any differences between depressive biases. It may also be beneficial to follow-up this study by only testing the effect of motivation using the different questionnaires. This procedure should provide information about what kind of biases depressed individuals manifest. Once this important information is obtained, the cognitive load conditions can be tested to manipulate and reduce any bias and also to point out different aspects of the biases.

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Appendix A

In the space below, please write as many things that you can think of that you do, or that other people do, that you would describe as good. If you think that you do these things more often than others, begin the sentence with "I". If you think that others do these things more often than you do, then start the sentence with "They". For example, "I work hard to achieve my goals," or "They help other people." Please list these statements in the order that they come to mind. You may take as much time as you need.

In the space below, please write as many things that you can think of that you do, or that other people do, that you would describe as bad. If you think that you do these things more often than others, begin the sentence with "I". If you think that others do these things more often than you do, then start the sentence with "They". For example, "I steal from others," or "They are rude and insulting to others." Please list these statements in the order that they come to mind. You may take as much time as you need.

Appendix B

In the space below, please write as many things that you can think of that you do that are good or bad. Please indicate whether you think the thing is good or bad by writing a (G) next to the behavior if you think it is good and a (B) next to the behavior if you think it is bad. For example, "(B) I steal from others," or "(G) I work hard to achieve my goals." Please list these statements in the order that they come to mind. You may take as much time as you need.

In the space below, please write as many things that you can think of that other people do that are good or bad. Please indicate whether you think the thing is good or bad by writing a (G) next to the behavior if you think it is good and a (B) next to the behavior if it is bad. For example, "(B) They are rude and insulting to others," or "(G) They help other people." Please list these statements in the order that they come to mind. You may take as much time as you need.

Appendix C

Please answer the following questions by circling a number on the scales below.

1. During these tasks, how distracted were you?

   Not at all distracted 1 2 3 4 5 Very distracted

2. During these tasks, how stressed were you?

   Not at all stressed 1 2 3 4 5 Very stressed

3. How motivated were you to perform these tasks?

   Not at all motivated 1 2 3 4 5 Very motivated

4. How difficult was it to perform the behavior listing tasks?

   Not at all difficult 1 2 3 4 5 Very difficult

Table 1

Nondepressed Mean Number of Behaviors Listed for All Experimental Conditions: Cognitive Load, Questionnaire Type, Target, and Behavior

			Target	
			I	They
High Cog Load	Interpersonal	Good	7.20	5.80
			(.81)	(.87)
		Bad	3.80	8.20
			(.71)	(1.24)
	Noninterpersonal	Good	7.00	6.00
			(1.02)	(1.19)
		Bad	5.29	7.14
			(.99)	(.83)
Low Cog Load	Interpersonal	Good	8.78	5.11
			(1.81)	(1.27)
		Bad	4.78	8.33
			(1.06)	(1.75)
	Noninterpersonal	Good	8.54	8.15
			(.69)	(.97)
		Bad	4.62	6.54
			(.72)	(.78)

Note: Standard errors are reported in parentheses

Table 2

Depressed Mean Number of Behaviors Listed for All Experimental Conditions: Cognitive Load, Questionnaire Type, Target, and Behavior

			Target	
			I	They
High Cog Load	Interpersonal	Good	8.44	5.11
			(1.73)	(.89)
		Bad	6.22	8.11
			(1.21)	(1.50)
	Noninterpersonal	Good	6.86	7.43
			(1.03)	(1.34)
		Bad	8.00	7.71
			(1.02)	(1.08)
Low Cog Load	Interpersonal	Good	9.25	4.50
			(1.05)	(.96)
		Bad	8.50	6.88
			(1.72)	(1.39)
	Noninterpersonal	Good	11.17	9.83
			(2.60)	(1.76)
		Bad	9.33	10.17
			(3.60)	(4.85)

Note: Standard errors are reported in parentheses

Table 3

Means of Behaviors Listed for Target and Behavior

	Target	
	I	They
Good	8.35	6.00
	(.47)	(.50)
Bad	6.45	7.75
	(.42)	(.58)

Note: Standard errors are reported in parentheses

Table 4

Means of Behaviors Listed for Questionnaire Type, Target and Behavior

		Target	
		I	They
Interpersonal	Good	8.36	5.17
		(.69)	(.49)
	Bad	5.69	7.92
		(.64)	(.71)
Noninterpersonal	Good	8.33	7.85
		(.65)	(.63)
	Bad	6.33	7.58
		(.80)	(.94)

Note: Standard errors are reported in parentheses

Table 5

Means of Behaviors Listed for Cognitive Load, Target and Behavior

		Target	
		I	They
High Cognitive Load	Good	7.38	6.08
		(.60)	(.52)
	Bad	5.83	7.79
		(.55)	(.60)
Low Cognitive Load	Good	9.43	6.90
		(.69)	(.66)
	Bad	6.81	7.98
		(.83)	(.97)

Note: Standard errors are reported in parentheses

Table 6

Means of Behaviors Listed for Depression, Target and Behavior

		Target	
		I	They
Nondepressed	Good	7.97	6.46
		(.54)	(.55)
	Bad	4.56	7.49
		(.42)	(.58)
Depressed	Good	8.83	6.43
		(.82)	(.68)
	Bad	7.87	8.10
		(.93)	(1.11)

Note: Standard errors are reported in parentheses

Biography

The author is a midwestern-born resident of Woodbridge, Virginia who graduated in 1993 from the College of William & Mary in Williamsburg, Virginia. After graduating with an M.A. in General Psychology from the University of Richmond, Ms. Fejfar will attend the University of Kentucky, in Lexington, to pursue her doctorate degree in Social Psychology.